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No. 80 MAY 1918

Feed Stuff Analyses

LICENSED BRANDS OF AGRICULTURAL LIME

A. F. WOODS, President
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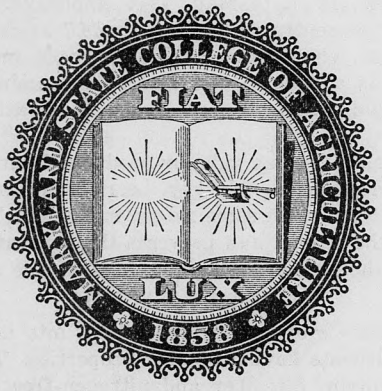

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ADDRESS CHEMICAL DEPARTMENT
MARYLAND STATE COLLEGE OF AGRICULTURE
COLLEGE PARK, MD.

ANALYSES OF

Feeds Sold in Maryland

BY THE CHEMICAL DEPARTMENT OF

The Maryland State College of Agriculture

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This bulletin contains the results of analysis of samples feeding stuffs obtained from June, 1917, to May, 1918, inclusive. The work has been mostly limited to "concentrated feeding stuffs," as defined in the feed law. The examination of wheat bran, middlings, corn meal and similar feeds has been limited, as a rule, to a microscopic examination for adulterants and have been found practically free from adulteration and are not listed herein.

The feeds herein are, as a rule, by-products from some industry, as the manufacture of oils, alcohol, whiskey, beer, breakfast foods, etc., or mixtures of several of them with some refuse molasses. The latter has feeding value, is liked by the animal and prevents the separation of fine and heavy ingredients from the lighter bulky material of the mixture.

FEED ANALYSIS.

A complete analysis of a feed separates it into its constitutional parts, or groups of constituents having similar properties. The usual constituents are water, ash, protein, fat, fiber and nitrogen-free extract.

WATER is present in all feeds and is an important article of commerce in this way. Old grain, called "dry," will contain about 10 percent, while new grain will contain more. If the amount is over 14 or 15 percent the grain or feed is very liable to mold and ferment. Fresh fruits and vegetables, as cabbage, turnips, etc., frequently contain over 90 percent of water. The water content of feed will change on storage, the amount of change depending on the condition at the start, method of storing, temperature and

*Resigned May 1.
†Vacant.

humidity of the air, etc. If the feed has been kiln-dried, as with dried brewer's or distiller's grains, molasses feed, etc., gain in weight is common. This would be indicated if the packages weigh more than the guaranteed weight and, in that case, a corresponding decrease in the percent of the other constituents should be expected. On the other hand, should the material lose moisture, a corresponding increase in the percent of the other constituents (but not in the actual amount) occurs.

The changes in moisture content are very important in connection with sampling and analysis and the proper care of samples for analysis—points which are liable to be entirely overlooked by those who have not been instructed in such matters.

ASH, as its name indicates, is the part of the feed which remains after burning. It is the mineral part, which has its origin in the minerals of the earth (soil). All other parts of the feed have their origin, either directly or indirectly, from the air.

PROTEIN, or crude protein, is the nitrogenous part, calculated from the nitrogen by multiplying it by 6.25. It includes albumens and other nitrogenous bodies not so valuable as food. Protein is essential for the formation of flesh, nerves, hair, feathers, etc., in fact nearly all tissues of the animal body, except fat, and it may serve to form fat.

FAT, or "crude fat," is the ether extract obtained by treating the dry substance with ether. In the case of grains, seeds, nuts and flesh it is nearly pure fat and oil, but with hay, grasses and coarse fodders it contains considerable amounts of wax, gum, etc. It is often a valuable constituent of feed, is the most concentrated form of energy, and serves to build fat in the animal when in excess of its immediate requirements. Large amounts of fat are not tolerated by farm animals, as a rule.

FIBER, or "crude fiber," is the fibrous, woody part, not soluble in ether, dilute acid or alkali. It is largely indigestible, but serves to give the ration proper bulk. The digestibility varies with the nature of the fiber and the kind of animal. The amount of fiber is small in flesh, cereal grains and nuts, but large in stems, stalks, hays, straws, fodders, husks, hulls, cobs, etc., and its amount, as shown by analysis, indicates the presence of such materials.

NITROGEN-FREE EXTRACT, sometimes called "carbohydrates," or "soluble carbohydrates" (thereby excluding the fiber, which is an insoluble carbohydrate), is obtained by finding the amounts of the constituents enumerated above and substracting this sum from 100 percent. It includes starch, sugars, pentosans, etc., which may be determined separately.

For inspection purposes it is generally sufficient to determine the amount of protein, fat and fiber, as this will indicate if the feed has been adulterated with inferior coarse material, such as hulls, straws, cobs, etc., as such substances are low in protein and fat but high in fiber.

A table of well-known and standard feed materials with several coarse materials is given on page 13, showing the approximate average composition for comparison with the feeds shown on the market as indicated in the following table (Pages 4-12). The analyses are given in percentage, or pounds in a hundred.

No.	Name of Manufacturer and Feeding Stuffs	Place of Sampling	Protein.		Fat or Ether Extract.		Crude Fiber.	
			Found.	Guaranteed.	Found.	Guaranteed.	Found.	Guaranteed.
	American Agricultural Chemical Co., New York, N.Y.							
29741	Protox Pure Ground Meat Scraps	Baltimore	56.07	56.00	14.74	10.00	2.65	.....
	Akron Feed & Milling Co. Akron, Ohio.							
29725	Portage Stock Feed	Cumberland	10.62	10.00	4.58	4.00	13.35	10.00
	Alfocorn Milling Co., East. St. Louis, Ill.							
29654	Leader Horse & Mule Feed	Baltimore	10.02	9.00	3.16	1.50	7.11	15.00
	American Linseed Co., Buffalo, New York.							
29662	Old Process Linseed Meal	Taneytown	33.96	34.00	7.08	5.00	7.77	8.00
	American Maize-Products Co., New York, N. Y.							
29776	Cream of Corn Gluten Feed	Baltimore	21.94	23.00	3.03	1.50	6.72	8.00
29706	Cream of Corn Gluten Feed	Maple Grove	24.37	23.00	1.92	1.50	6.40	8.50
	American Milling Co., Peoria, Ill.							
29789	Amco Dairy Feed	Baltimore	25.89	25.00	8.83	8.00	13.29	16.00
29698	Amco Dairy Feed	Ellicott City	27.47	25.00	7.78	8.00	12.87	16.00
29836	Amco Fat Maker	New Windsor	10.35	10.00	3.86	3.50	9.60	12.00
29837	Amco Stock Feed	New Windsor	12.98	10.00	6.48	3.50	13.57	9.00
29658	Linseed Meal & Old Process Oil Feed	Baltimore	30.19	30.00	6.96	5.00	8.30	10.00
29714	Peoria Horse Feed	Sharon	11.85	10.00	3.85	2.00	13 97	14.00
29824	Peoria Horse Feed	Conowingo	9.74	10.00	3.80	2.50	13.32	14.00
29808	Sucrene Calf Meal	Baltimore	19.83	20.00	3.34	4.00	3.40	3 00
29761	Sucrene Calf Meal	Baltimore	18.95	20 00	3.30	4.00	3.46	3.00
29790	Sucrene Dairy Feed	Baltimore	22.03	16.50	7.06	3.50	13.92	14.00
29659	Sucrene Dairy Feed	Baltimore	20.62	16.50	3.02	3.50	13.97	14.00
29738	Sucrene Horse Feed with Alfalfa	Hancock	10.62	10.00	4.05	2.50	11.94	12.00
29809	Sucrene Hog Meal	Baltimore	20.71	18.00	7.25	4.00	8 45	14.00
29849	Sucrene Horse & Mule Feed	Fallston	9.65	9.00	3.85	2.50	11.55	12 00
29855	Sucrene Poultry Mash	Walkersville	19.31	19.00	5.85	3.50	11.35	12 00
29791	Tip Top Horse Feed	Baltimore	11.76	10.00	3.60	3.50	13.76	12.00
29694	Tip Top Horse Feed with Alfalfa	Annapolis	10.97	10.00	3.43	2.50	12.57	12.00
	Arcady Farm Milling Co., Lake Forrest, Ill.							
29668	Dairy Feed	Westminster	20.31	16.00	3.62	3.50	12.12	

29694	Tip Top Horse Feed with Alfalfa	Annapolis	10.97	10.00	3.43	2.50	12.57	12.00
	Arcady Farm Milling Co., Lake Forrest, Ill.							
29663	Dairy Feed	Westminister	20.01	16.00	3.62	3.50	13.43	15.00
29838	Country Gentlemen Horse Feed	Linwood	12.55	9.00	3.21	2.00	17.70	12.00
	Archer Daniels Linseed Co., Buffalo, N. Y.							
29856	Old Process Ground Oil Cake	Hagerstown	34.58	33.00	7.90	6.00	8.50	10.00
	Armour Fertilizer Works, Chicago, Ill.							
29792	Meat Meal-Meat Residue	Baltimore	64.15	60.00	7.87	6.00	2.45	2.00
29664	Meat Meal-Meat Residue	Woodbine	63.80	60.00	8.71	6.00	1.97	2.00
	Atlantic Export Co., New York, N. Y.							
29777	Dried Brewers Grains	Baltimore	25.27	25.00	6.90	5.00	16.70	14.00
29715	Dried Brewers Grains	Fallston	24.22	25.00	6.33	6.00	15.97	14.00
	J. J. Badenoch Co., Chicago, Ill.							
29726	C. & O. Chop	Friendsville	10.79	8.00	5.80	3.00	11.38	12.00
29727	Daily Egg Poultry Feed	Hagerstown	11.76	9.50	3.13	2.50	3.50	5.00
29857	Gloskoat Horse Feed	Chewsville	11.14	10.00	4.10	2.00	10.60	12.00
	Baltimore Pearl Hominy Co., Baltimore, Md.							
29834	Spring Garden Corn Oil Meal	Baltimore	15.27	12.00	8.83	6.00	4.08	6.00
29823	Spring Garden Dairy Feed	Baltimore	18.60	20.00	7.23	5.00	8.77	11.00
29835	Spring Garden Hominy Feed	Baltimore	10.62	10.00	5.14	6.00	5.71	6.00
	M .F. Baringer, Philadelphia, Pa.							
29665	Goodlow Cotton Seed Meal	Westminster	37.64	36.00	6.31	5.00	13.18	16.00
29740	Cotton Seed Meal	Westminister	37.47	36.00	6.56	5.00	11.45	16.00
	W. P. Battle & Co., Memphis, Tenn.							
29825	Battle Brand Cotton Seed Meal	Centreville	34.66	36.00	6.71	5.00	14.45	10.00
	Blamberg Bros., Inc, Baltimore, Md.							
29701	Cornell Brand Beef Scraps	Baltimore	56.25	55.00	10.85	5.80	2.27	8.00
	Batchford Calf Meal Factory, Waukegan, Ill.							
29810	Calf Meal	Baltimore	26.59	24.00	6.98	5.00	7.20	6.75
29666	Calf Meal	Woodbine	23.25	24.00	7.13	5.00	7.93	6.75
29811	Milk Mash	Baltimore	21.06	20.00	4.50	4.00	6.85	7.50
29762	Milk Mash	Baltimore	21.32	20.00	4.60	4.00	6.84	7.50
29812	Pig Meal	Baltimore	22.38	18.00	6.33	5.00	6.97	7.00
	Fred. Bauernschmidt. Baltimore, Md.							
29656	Brewers Dried Grains	Baltimore	26.15	26.00	6.19	6.00	15.17	13.00
	J. Bolgiano & Sons, Baltimore, Md.							
29695	Square Deal Poultry Food	Baltimore	10.53	11.50	3.68	3.87	3.10	2.78
	F. W. Brode & Co., Memphis, Tenn.							
29774	Jay Brand Cotton Seed Meal	Freeland	36.59	36.00	7.18	5.00	13.22	14.00
29667	Jay Brand Cotton Seed Meal	Westminister	35.36	36.00	6.33	5.00	13.96	14.00

No.	Name of Manufacturer and Feeding Stuffs.	Place of Sampling.	Protein.		Fat or Ether Extract.		Crude Fiber.	
			Found.	Guaranteed.	Found.	Guaranteed.	Found.	Guaranteed.
	Buckeye Cotton Oil Co., Cincinnati, Ohio							
29668	Cotton Seed Meal	Gaithersburg	36.24	36.00	6.35	5.00	10.92	14.00
	Chapin & Co., Chicago, Ill.							
29707	Acorn Dairy Ration	Pikesville	26.15	28.00	5.52	5.50	8 90	11.00
29669	Lactola Dairy Feed	Silver Spring	17.11	16.50	3.04	3.00	9.87	12.00
29670	Unicorn Dairy Ration	Gaithersburg	28.17	26.00	7.56	11.00	9.02	5.50
29793	Unicorn Dairy Ration	Baltimore	29.31	26.00	6.73	5.50	10.04	11.00
	Clover Leaf Milling Co., Buffalo, N. Y.							
29763	Buffalo Horse Feed	Baltimore	13.95	9.00	2.28	1.50	17.17	15.00
29847	Dairy Rations	Baltimore	16.05	16.00	6.81	3.50	18.05	15.00
29671	Dairy Feed	Taneytown	17.90	13.50	5.43	3.50	13.18	15.00
	Consolidated Dressed Beef Co., Philadelphia, Pa.							
29736	Beef Scraps	Laurel	44.03	45.00	13.98	12.00	1.40	2.00
	Corby Co., Washington, D. C.							
29779	Dried Grains	Baltimore	16.67	17.00	5.61	5.00	20.52	22.00
29672	Dried Grains	Adamstown	20.27	17.00	5.90	5.00	17.10	22.00
	Corn Products Refining Co., New York, N. Y.							
29673	Buffalo Corn Gluten Feed	Gaithersburg	29.75	23.00	2.58	1.00	6.51	8.50
29708	Diamond Hog Meal	Greenmount	20.45	18.00	9.50	7.00	9.72	13.00
	S. P. Davis, Little Rock, Ark.							
29716	Good Luck Brand Cotton Seed Meal	Fallston	41.16	41.00	6.68	6.00	12.05	9.00
29795	Veribest Cotton Seed Meal	Baltimore	41.16	38.50	6.90	6.00	9.82	10.00
	Albert Dickinson Co., Chicago, Ill.							
29751	White Cross "D" Horse Feed	Baltimore	11.58	10.00	4.98	2.50	7.05	8.00
	Dixie Mills Co., East St. Louis, Ill.							
29821	Hen Feed	Pocomoke City	12.55	10.00	3.02	3.00	3.08	5.00
29822	Horse & Mule Feed	Pocomoke City	12.32	10.00	3.28	2.50	10.40	12.00
	Douglas Co., Cedar Rapids, Iowa.							
29752	Corn Gluten Feed	Baltimore	22.90	23.00	1.60	1.00	6.35	6.00

	Early & Daniel Co., Cincinnati, Ohio.							
29702	Ben Hur Horse & Mule Feed	Govans	11.58	10.00	3.69	2.00	14.31	15.00
29753	Ce-Re-A-Lia Sweets for Dairy	Baltimore	20.27	19.00	4.45	4.50	8.43	9.00
29754	Rangers Balance Ration	Baltimore	12.02	10.00	4.73	2.50	10.80	15.00
29755	Tuxedo Chop	Baltimore	12.02	11.00	4.64	3.00	8.45	10.00
	Eastern Cotton Oil Co., Hertford, N. C.							
29742	Ordinary-Cotton Seed Meal	Baltimore	35.45	36.00	7.80	4.00	11.82	15.00
	East St. Louis Cottor Oil Co., Chicago, Ill.							
29690	*Hull Bran	Gaithersburg	3.51	.....	.45	.....	35.82	.....
	John W. Eshelman, Lancaster, Pa.							
29717	Home Made Dairy Feed	Perryman	23.85	20.00	5.05	6.00	10.57	11.00
29826	Horse Feed	Rising Sun	10.35	10.00	4.27	2.00	13.50	14.00
29709	Laying Mash	Laurel	23.60	20.00	5.13	3.00	6.57	7.00
29827	Laying Mash	Rising Sun	20.53	20.00	6.12	5.00	7.17	7.00
	Farmers Feed Co., New York, N. Y.							
29858	Bull Brand Dried Brewer's Grains	Walkersville	25.89	27.20	6.33	6.30	13.10	12.85
	Feed Product Milling Co., Chicago, Ill.							
29768	Eat All Horse Feed	Baltimore	10.79	10.00	4.13	3.00	6.57	8.00
29674	King Falfa Horse Feed	Silver Spring	12.90	10.00	2.91	2.00	12.74	15.00
	Fraser-Smith Co., Minneapolis, Minn.							
29833	Barley Feed	Conowingo	10.62	12.90	2.28	4.60	16.52	11.10
	Frederick County Farmers Exchange, Frederick, Md.							
29675	Gambrill Dairy Feed	Adamstown	17.55	14.50	6.01	5.00	11.22	12.00
	Fritz Co., Philadelphia, Pa.							
29764	Meat & Bone Scraps	Baltimore	40.28	40.00	13.90	10.00	.92	2.00
	Gambrill Grain Products Co., Baltimore, Md.							
29775	Cow Feed	Baltimore	9.30	10.00	2.95	2.50	17.55	20.00
29769	Alice-Anna Horse Feed	Baltimore	10.71	10.00	3.28	3.00	20.10	17.00
	Golden Grain Milling Co., East St. Louis, Ill.							
29796	Puritan Horse & Mule Feed	Baltimore	10.62	9.00	2.36	1.50	17.67	16.00
29703	Puritan Horse & Mule Feed	Baltimore	11.85	9.00	3.13	1.50	15.03	16.00
	Grain Belt Mills Co., So. St. Joseph, Mo.							
29765	Greenleaf Feed Alfalfa & Molasses	Baltimore	12.90	10.00	2.08	.75	20.45	25.00
29704	Pennant Horse & Mule Feed	Baltimore	12.02	10.00	1.81	1.00	14.90	10.00
29850	Bonanzo Horse & Mule Feed	Cockeysville	9.74	10.00	2.62	2.00	11.57	12.00
	Hales & Edwards Co., Chicago, Ill.							
29840	Harvest Horse Feed	Silver Spring	12.97	10.00	2.94	2.00	14.60	15.00
29677	Red Comb Alfalfa Meal	Silver Spring	15.27	13.50	2.22	1.00	23.30	35.00

*Sold by Thomas & Co., Gaithersburg, Md.

No.	Name of Manufacturer and Feeding Stuffs.	Place of Sampling.	Protein.		Fat or Ether Extract.		Crude Fiber.	
			Found.	Guaranteed.	Found.	Guaranteed.	Found.	Guaranteed.
	Hayes Grain & Commission Co., Little Rock, Ark.							
29828	Cotton Seed Meal	Rising Sun	36.68	36.00	6.57	5.00	14.27	12.00
	Dwight E. Hamlin, Pittsburgh, Pa.							
29728	Quality Feed	Cumberland	11.06	9.00	2.57	2.00	15.92	10.00
29859	Horse, Mule & Dairy Feed	Hagerstown	12.11	14.00	4.07	3.50	14.85	16.00
	W. S. Hoge & Son, Washington, D. C.							
29678	Milk Maker Dairy Feed	Derwood	14.65	13.50	4.59	4.00	15.81	15.00
	Humphreys-Godwin Co., Memphis, Tenn.							
29718	Danish Brand Cotton Seed Meal	Fallston	36.08	36.00	6.78	5.00	12.90	15.00
	International Glue Co., Boston, Mass.							
29767	Red Star Brand Fish Scrap	Baltimore	40.54	45.00	1.91	2.00	.67	1.00
	International Sugar Feed Co., Minneapolis, Minn.							
29743	Climax Dairy Feed	Baltimore	14.04	12.50	5.19	4.00	15.57	12.00
29679	Grofast Calf Meal	Mt. Airy	26.76	25.00	5.02	5.00	9.22	10.00
29756	Special Dairy Feed	Baltimore	16.85	15.00	5.60	4.50	14.26	12.00
	International Sugar Feed No. 2 Co., Memphis, Tenn.							
29842	Cow Feed	Annapolis	17.90	16.50	4.70	3.50	21.10	14.00
29841	Milk Made Dairy Feed	Sykesville	22.38	24.00	6.40	5.00	18.40	12.00
29851	Honor Horse Feed	Forest Hill	11.41	11.00	3.22	3.00	17.47	22.00
29852	Jewell Dairy Feed	Forest Hill	10.97	9.00	4.40	2.00	16.89	15.00
	Chas. A. Krause Milling Co., Milwaukee, Wis.							
29680	Badger Dairy Feed	Westminster	16.50	16.00	4.52	3.00	17.17	15.00
29681	Badger Hominy Feed	Westminster	11.76	10.00	7.01	6.00	4.54	5.00
29719	Blue Top Dairy Feed	Perryman	14.57	13.00	5.60	2.00	12.65	15.00
29817	Cream City Horse Feed	Baltimore	12.64	10.00	2.40	1.50	14.65	14.00
29766	Cream City Horse Feed	Baltimore	11.41	10.00	1.90	1.50	14.53	11.00
29867	Blue Top Horse Feed	Walkersville	10.35	10.00	3.23	1.00	18.55	16.00
	Lancaster Mill & Elevator Co., Lancaster, Pa.							
29780	Conestoga Horse Feed	Baltimore	10.18	10.00	2.15	1.50	13.78	14.00

	Lanier Bros., Nashville, Tenn.							
29682	Holstein Brand Cotton Seed Feed	Westminster	38.02	36.00	7.14	5.00	9.83	14.00
	Larrowe Milling Co., Detroit, Mich.							
29710	Big Six (6) Dairy Feed	Hampstead	21.76	21.00	5.85	4.00	8.85	12 00
29797	Dried Beet Pulp	Baltimore	9.56	8.00	.79	.50	18.47	20.00
29720	Dried Beet Pulp	Highland	10.27	8.00	.68	.50	17.85	20.00
29818	Larro Feed For Dairy Cows	Baltimore	21.24	20.00	4.43	3.00	12.16	14.00
29655	Larro Feed For Dairy Cows	Baltimore	20.09	20 00	3.58	3.00	12.32	14.00
29860	Log Cabin Horse Feed	Cumberland	9.92	10.00	3.67	3.00	14.97	15.00
	D. B. Martin Co., Baltimore, Md.							
29819	Feed Tankage	Baltimore	54.32	45.00	8.90	6.00	2.25	.....
	Meridian Grain & Elevator Co., Meridian, Miss.							
29861	Tip Top Prime Cottonseed Meal	Taneytown	39.58	38.62	7.25	6.50	11.45	10 00
	Milwaukee Grain & Feed Co., Milwaukee, Wis.							
29843	Crown Brewer's Dried Grains	Silver Spring	15.45	25.00	5.83	5.00	15.85	15.00
	National Oats Co., St. Louis, Mo.							
29798	Pawnee-Sweet Feed	Baltimore	11.06	10.00	2.82	2.00	13.56	19.00
	H. & E. Newmand, St. Louis, Missouri							
29721	Golden Kolb Dried Brewers Grains	Fallston	26.68	24.00	5.88	6.00	15.05	13.00
	Ninety Six Oil Mill, Ninety Six, S. C.							
29844	Star Fort Cotton Seed Feed	Frederick	36.77	36.00	6.80	6.00	13.25	12.00
	Northw'n Consolidated Mill. Co., Minneapolis, Minn.							
29750	XXX Comet Feed	Baltimore	20.62	16.00	5.95	4.00	2.72	8.00
	Omaha Alfalfa Milling Co., Omaha, Neb.							
29729	Alfalfa Meal	Cumberland	13.69	12.00	1.28	1.00	33.44	30.00
29862	Peerless Alfalfa Horse Feed	Cumberland	10.88	10.00	3.12	2.00	11.82	12.00
	M. C. Peters Mill Co., Omaha, Neb.							
29730	Arab Horse Feed	Cumberland	12.64	10.00	3.10	2.00	10.87	15.00
29757	Economy Horse Feed	Baltimore	13.51	10.00	2.90	2.00	16.17	20.00
29691	High Score Alfalfa & Molasses Feed	Baltimore	12.55	10.00	3.48	.50	14.32	26.00
29731	Lucern Alfalfa Meal	Oakland	15.09	12.00	1.58	.50	31.22	33.00
29799	King Corn Horse & Mule Feed	Baltimore	12.37	10.00	3.10	1.50	14.72	18.00
29800	Re-Peter Horse Feed	Baltimore	11.58	10.00	3.20	1.50	10.78	18.00
29696	Re-Peter Horse Feed	Annapolis	12.81	10.00	2.98	1.50	16.47	18.00
	Park & Pollard Co., Boston, Mass.							
29699	Lay or Bust Dry Mash	Ellicott City	18.25	18.00	2.45	1.50	9.46	12.00
29863	Stevens Forty-four Dairy Ration	Chewsville	24.57	24.00	5.95	5.00	14.50	14.00
	Chas. Pope, Chicago, Ill.							
29781	Dried Beet Pulp	Baltimore	9.83	8.00	1.18	.50	19.81	20.00

No.	Name of Manufacturer and Feeding Stuffs.	Place of Sampling.	Protein.		Fat or Ether Extract		Crude Fiber.	
			FOUND.	Guaranteed.	FOUND.	Guaranteed.	FOUND.	Guaranteed.
	Proctor & Gambrill Distributing Co., Cincinnati, Ohio							
29864	Copra Oil Meal	Hagerstown...	20.53	20.00	10.01	6.00	10.60	12.00
	Quaker Oats Co., Chicago, Ill.							
29711	Big "Q" Dairy Ration	Owings Mills..	22.03	21.00	5.78	6.00	12.02	10.50
29722	Boss Feed	Perryman.....	10.79	8.00	3.98	3.00	8.31	12.00
29829	Buckeye Feed	Leslie.....	16.58	15.50	5.80	4.50	8.17	8.50
29723	Green Cross Horse Mixed Feed	Aberdeen.....	11.85	10.00	3.10	2.50	13.80	12.00
29700	Schumacher Calf Meal	College Park..	19.39	18.00	9.93	8.00	2.25	4.00
29683	Schumacher F. S. Feed	Silver Spring..	12.46	10.00	4.20	3.25	13.41	10.00
29830	Schumacher F. S. Feed	Leslie.....	10.27	10.00	3.92	3.25	12.42	10.00
29845	Vim Feed	Adamstown ...	5.04	5.00	2.27	2.00	11.30	27.00
29853	Dairy Feed	Bel Air.....	15.62	16.00	5.90	5.50	15.05	16.00
	Ralston Purina Co., St. Louis, Mo.							
29692	Good Luck Feed with Molasses	Elkton	10.79	9.00	2.85	1.50	14.49	15.00
29744	Good Luck Dairy Feed	Baltimore.....	12.29	13.50	4.27	3.50	16.67	13.00
29785	Protena Dairy Feed	Baltimore.....	15.45	16.50	4.30	3.50	14.50	12.00
29712	Protena Dairy Feed	Hampstead....	15.71	16.50	2.43	3.50	16.65	12.00
28786	Protena Horse Feed	Baltimore.....	10 53	9.00	3.15	1.50	17.27	15.00
29653	Protena Horse Feed	Baltimore.....	11.58	9.00	2.81	1.50	14.68	15.00
29684	Purina Chicken Chowder	Woodbine.....	19.22	18.00	3.78	4.00	8.82	8.00
29693	Purina Cow Chow Feed	Elkton	24.75	24.00	4.45	4.50	15.02	13.50
29782	Purina Cow Chow Feed	Baltimore.....	24.48	24.00	3.17	4.50	12.48	13.50
29745	Purina O'Molene Feed	Baltimore.....	10.71	8.70	4.75	3.20	9.36	8.00
29783	Purina O'Molene Feed	Baltimore.....	11.50	8.70	4.69	3.20	8.57	8.00
29784	Purina Pig Chow	Baltimore.....	17.46	12.00	3.35	1.75	9.95	9.00
	Reindollar Bros. & Co., Taneytown, Md.							
29865	Rein-O-Lay-Poultry Mash	Taneytown....	13.86	12.00	3.87	3.00	3.95	4.00
	Daniel Rider, Baltimore, Md.							
29660	Cotton Seed Meal	Baltimore.....	33.43	36.00	12.28	10.00	10.63	10.00

	Roberts Cotton Oil Co., Cairo, Ill.							
29685	Cotton Seed Meal	New Windsor..	39.40	38.62	6.75	5.00	10.67	12.00
	Ryde & Co., Chicago, Ill.							
29787	Cream Calf Meal	Baltimore	26.94	25.00	5.40	5.00	7.42	6.00
29758	Cream Calf Meal	Baltimore	26.24	25.00	5.88	5.00	7.39	6.00
	Wm. G. Scarlett & Co., Baltimore, Md.							
29746	Oriole Brand H. G. Beef Scraps	Baltimore	52.38	50.00	13.55	12.00	1.20	3.00
29747	Oriole Brand H. G. Dry Mash	Baltimore	21.41	20.00	5.15	4.00	9.97	9.00
	S. F. Scattergood & Co., Philadelphia, Pa.							
29848	Sunset Brand Cottonseed Meal	Whiteford	34.31	36.00	6.70	5.00	15.95	16.00
	C. S. Schermerhorn & Son, Baltimore, Md.							
29820	Prime Cotton Seed Meal	Baltimore	37.47	36.00	5.94	6.00	12.27	10.00
29854	Dried Beef Scrap	Laurel	60.90	55.00	16.20	12.00	.....	1.00
	Somers & Co., San Francisco, Cal.							
29748	Red Star Alfalfa Meal	Baltimore	15.53	15.00	1.88	1.40	29.87	29.50
	Southern Cotton Oil Co., Dothan, Ala.							
29801	Peanut Meal	Baltimore	40.98	32.00	9.11	7.50	4.62	9.00
	Southern Peanut Hull Mills, Inc., Petersburg, Va.							
29661	Gubernut Peanut Meal	Baltimore	41.16	45.00	7.21	6.00	6.28	5.00
	Spencer Kellogg & Sons, Inc., Buffalo, N. Y.							
29788	Pure Old Process Oil Meal	Baltimore	35.98	33.00	7.50	5.00	7.22	10.00
29686	Pure Old Process Oil Meal	Westminster	34.31	33.00	6.49	5.00	8.12	10.00
29802	Old Process Cocoanut Meal	Baltimore	21.67	20.00	10.40	6.00	10.08	11.00
29737	Old Process Cocoanut Meal	Baltimore	21.24	20.00	9.40	6.00	9.59	11.00
	Wm. H. Stellman, Baltimore, Md.							
29803	F. B. Brewer's Dried Grains	Baltimore	27.03	26.00	7.33	6.00	16.70	13.00
	Sugarine Co., Peoria, Ill.							
29770	Ideal Horse Feed with Alfalfa	Baltimore	11.32	10.00	3.63	2.50	14.77	12.00
29705	Universal Scratch Feed	Govans	12.64	10.00	3.27	2.50	3.49	5.00
	Swift & Co., Inc., Kearny, N. J.							
29814	Digester Tankage	Baltimore	62.57	60.00	11.40	6.00	1.70	3.00
29749	Digester Tankage	Baltimore	64.85	60.00	10.63	6.00	1.95	3.00
29866	Laymore Meat Scraps	Hagerstown	43.70	45.00	11.40	6.00	.. ...	3.00
	Taylor Commission Co., Atlanta, Georgia							
29804	Cotton Seed Meal	Baltimore	34.75	30.00	6.93	5.50	13.75	14.00
29759	Good Cotton Seed Meal	Baltimore	37.56	36.00	6.25	5.50	10.27	14.00
	Thomas & Co., Frederick, Md.							
29687	Dairy Feed	Barnesville	18.78	16.50	4.80	3.50	14.15	14.00
29839	Dairy Feed	Union Bridge	17.55	16.00	6.37	5.50	15.97	16.50

No.	Name of Manufacturer and Feeding Stuffs.	Place of Sampling.	Protein.		Fat or Ether Extract.		Crude Fiber.	
			FOUND.	Guaranteed.	FOUND.	Guaranteed.	FOUND.	Guaranteed.
	Thompson & Co., Pittsburgh, Pa.							
29732	Oil Meal	Friendsville	34.14	30.00	6.65	5.50	8.55	11.00
	Toledo Grain & Milling Co., Toledo, Ohio							
29733	Camps C. O. B. K. Chop Feed	Oakland	10.71	10.00	3.80	5.50	6.95	9.00
	Ubiko Milling Co., Cincinnati, Ohio.							
29868	Union Grains	Walkersville	23.60	24.00	5.62	5.00	11.55	10.00
	Union Seed & Fert. Co., New York, N. Y.							
29688	Columbia Cottonseed Feed	Westminster	25.71	20.56	4.98	3.00	19.44	25.00
29734	Security Cottonseed Meal	Hagerstown	36.51	36.00	6.63	5.50	12.65	14.00
29735	Surety Brand Cottonseed Meal	College Park	36.51	36.00	6.35	5.50	12.52	14.00
	Van Iderstine Co., Long Island City, N. Y.							
29815	Darlings Digester Tankage	Baltimore	60.28	60.00	7.43	5.00	3.87	3.00
	Virginia Feed & Milling Corporation, Alexandria, Va.							
29846	Blue Bell Dairy Feed	Silver Spring	20.36	20.00	4.02	3.00	15.50	15.00
29806	Crown Poultry Feed	Baltimore	10.79	10.00	5.08	3.00	4.64	5.00
29760	Old Dominion Horse & Mule Feed	Baltimore	13.78	10.00	3.87	3.00	14.98	15.00
29816	Supreme Tivoli Brand Horse & Mule Feed	Baltimore	13.95	12.00	3.57	3.00	12.51	15.00
	John Wade & Son, Memphis, Tenn.							
29807	Dandy Hen Feed	Baltimore	10.79	10.00	4.25	3.00	3.52	5.00
	C. W. Wagar & Co., Philadelphia, Pa.							
29697	Cotton Seed Meal	Annapolis	38.52	38.62	6.38	6.00	12.15	12.00
	Westminster Hide & Tallow Co., Westminster, Md.							
29773	Tankage	Westminster	53.44	50.00	17.35	15.00	5.55	.....
	Western Grain Products Co., Hammond, Ind.							
29832	Calumet Dairy Feed	Rising Sun	17.38	20.00	4.40	5.00	11.70	11.00
29713	Hammond Dairy Feed	Maple Grove	15.80	16.50	6.53	3.50	14.56	11.00
29689	Hammond Scratch Feed	Mt. Airy	11.93	10.00	2.60	2.50	3.20	5.00

Table II. Showing approximate average per cent. (pounds per hundred) of protein, fat and fiber in familiar substances for comparison.

	Water.	Protein.	Fat.	Fiber.
Meat Meal	10	70	12	1
Dried Blood	10	80	3	0
Cotton Seed Meal	8	40	8	8
Linseed Meal	10	35	7	8
Gluten Meal	10	32	6	2
Gluten Feed	10	25	3	7
Corn Germ Oil Meal	9	24	10	8
Malt Sprouts	10	25	2	12
Dried Distillers' Grains (Corn)	9	30	11	11
Dried Distillers' Grains (Rye)	9	20	6	12
Dried Brewers' Grains	9	25	6	11
Wheat Middlings	11	17	5	6
Wheat Bran	11	15	4	9
Corn Bran	9	8	6	13
Corn Cobs	10	2+	0.5	30
Corn	11	10	5	2
Oats	10	12	5	10—
Wheat	10	12	2	2—
Rye	9	11	2	2—
Barley	10	12	2	4
Buckwheat	12	10	2	9—
Cow Peas	13	21	1+	4
Timothy Hay	12	6	2.5	29
Clover Hay	15	12	3	25
Alfalfa Hay	9	14	2	28
Cotton Seed Hulls	10	4	2	47
Oat Straw	10	4	2	37
Wheat Straw	10	3	1+	38
Cabbage	90	2+	0.4	1½
Turnips	90	1	0.2	1
Pumpkins	91	1+	0.4	2
Milk	87	3½	4	0

BRANDS OF AGRICULTURAL LIME LICENSED FOR SALE IN MARYLAND FOR THE YEAR 1918.

	Guaranteed Analysis	
	Lime, CaO	Magnesia, MgO
F. D. Adams, Hagerstown, Md., No. 7.		
Marl	50	
J. E. Baker Company, York, Penna.		
Victor Fine Ground Limestone	47	4
Empire Burned Lump Lime	85	3
Victor Burned Lime	50	35
S. W. Barrick & Son, Woodsboro, Md.		
Ground Lime	85	
H. G. Agricultural Lime	85	
Hydrated Lime	52	
Beaver Dam Marble Co., Cockeysville, Md.		
Agricultural Limestone	30	20
Blair Limestone Co., Martinsburg, W. Va.		
Opequon Hydrated Lime	65	2
John E. Buffington, Union Bridge, Md.		
Agriculture Lime		
Herbert Bryant's Son, Alexandria, Va.		
Oyster Shell Lime	45	
G. M. Bushey & Son, Cavetown, Md.		
Agricultural Lump Lime	85	5
Carbo-Agricultural Lime Co., Wilmington, Del.		
Carbo-Lime	25	1
Chesapeake Shell and Lime Co., Crisfield, Md.		
Ground Oyster Shells	50	
Crisfield Shell Lime Co., Inc., Crisfield, Md.		
Hydrated Oyster Shell Lime	60	
Emig Lime Company, Hellam, Penna.		
Agricultural Lump Lime	90	
Fountain Rock Lime Co., Woodsboro, Md.		
Agricultural Lump Lime	85	
Ground Lime	85	
Hydrated Lime	50	
M. J. Grove Lime Co., Lime Kiln, Md.		
Famous Frederick County Lime	80	9
Famous Frederick County Pulverized Limestone	45	5
John S. Hyde, Westminster, Md., No. 10.		
Agricultural Lump Lime	85	
O. J. Keller Lime Co., Buckeystown, Md.		
Agricultural Lime	85	
D. C. Kemp Lime Co., Frederick, Md.		
Agricultural Lump Lime	75	15
Knickerbocker Lime Co., Philadelphia, Pa.		
Hydrated Lime	50	35
Ground Lime	60	33
Run of Kiln	60	33
E. J. Lavino & Co., Philadelphia, Pa.		
Pulverized Limestone	40	16
Legore Combination Lime Co., Legore, Md.		
Ground Agricultural Lime	85	
Agricultural Lump Lime	85	
Refined Hydrated Lime	50	
McAleer Lime Co., Walkersville, Md.		
Agricultural Lump Lime	90	
Merion Lime and Stone Co., Morristown, Pa.		
Hydrated Lime	45	30
Ground Fresh Lime	50	30
Run of Kiln Lime	50	30

	Guaranteed Analysis	
	Lime, CaO	Magnesia, MgO
Moore-Pendleton Co., Princess Anne, Md.		
Pulverized Oyster Shells	50	
Henry Mosser, Oakland, Md., No. 1.		
Agricultural Burnt Lime		
Natural Lime-Marl Co., Roanoke, Va.		
Lime-Marl	50	
G. Ober & Sons Co., Baltimore, Md.		
Ground Nova Scotia Land Plaster		
Orem & Winterbottom, Cambridge, Md.		
Burnt Oyster Shells	65	
Palmer Lime and Cement Company, York, Pa.		
Agricultural Lime	90	5
Challenge Br. Hydrated Lime	70	3
Ground Limestone	48	5
Peerless Oyster Co., Baltimore, Md.		
Unburnt Oyster Shell Lime	50	
Potomac Company, Harpers Ferry, W. Va.		
Potomac Hydrated Lime	68	
Quarryville Lime and Stone Company, Quarryville, Pa.		
Quarryville Lime	50	2
Salisbury Lime Co., Salisbury, Md.		
Hydrated Oyster Shell Lime	60	
Security Cement and Lime Co., Hagerstown, Md.		
Berkley Ground Lime	90	3
" Hydra-Calcite	55	
" Hydrated Lime	72	2
" Lump Lime	80	
" Pulverized Limestone	44	
Shank & Etzler, Frederick, Md.		
Lump Lime	60	
Standard Lime and Stone Company, Buckeystown, Md.		
Standard Hydrated Agricultural Lime	70	
Ground Agricultural Lime	90	
Agricultural Lime	90	
Standard Pulverized Limestone	50	
Steacy & Wilton Co., Wrightsville, Pa.		
Hydrated Lime	65	
Run of Kiln Lime	50	
Lewis O. Stirn, Woodlawn, Md.		
Pulverized Limestone	30	20
Thomasville Stone and Lime Co., Thomasville, Pa.		
Ground Limestone	50	
Tidewater Portland Cement Co., Baltimore, Md.		
Lump Lime	92	1
Hydrated Lime	71	½
Wm. H. Valliant & Bro., Bellevue, Md.		
Burnt Oyster Shell Lime	65	
Charles Warner Co., Wilmington, Del.		
Run of Kiln Lime	57	36
Pulverized Burned Lime	56	37
Pulverized Limestone	29	19
Cedar Hollow Limoid	42	28
York Valley Lime Company, York, Pa.		
York Valley Chemical Lime	90	

PRACTICAL USE OF FEEDS.

For directions in regard to the practical use of feeds and the calculation of rations the following bulletins are recommended:

Sent free by the U. S. Dept. of Agriculture, Washington, D. C.

Raising and Fattening Beef Calves in Alabama. (Department Bulletin 73.)

Economical Cattle Feeding in the Corn Belt. Farmers' Bulletin 588.)

The Feeding of Dairy Cows (Farmers' Bulletin 743.)

Feeding and Management of Dairy Calves. (Farmers' Bulletin 777.)

Equipment for Farm Sheep Raising. (Farmers' Bulletin 810.)

Farm Sheep Raising for Beginners. (Farmers' Bulletin 840.)

Utilization of Farm Wastes in Feeding Live Stock. (Farmers' Bulletin 873.)

Swine Management. (Farmers' Bulletin 874.)

For Sale, at prices named, by "Superintendent of Documents, Government Printing Office, Washington, D. C." (Postage stamps not accepted.)

Cost of Raising a Dairy Cow. (Department Bulletin 49.) Price, 5 cents.

Fattening Cattle in Alabama .(Department Bulletin 110.) Price, 5 cents.

Computation of Rations for Farm Animals. (Department Bulletin 459.) Price, 5 cents.

Feeding Farm Animals .(Farmers' Bulletin 22.) Price, 5 cents.

Principles of Horse Feeding. (Farmers' Bulletin 170.) Price, 5 cents.

Pig Management. (Farmers' Bulletin 205.) Price, 5 cents.

Crimson Clover, Utilization. (Farmers' Bulletin 579.) Price 5 cents.

Feeding for Meat Production. (Bur. of Animal Ind. Bulletin 108.) Price, 10 cents.

Beef Production in Alabama, 1. Cost of Raising Cattle. 2. Wintering Steers Preparatory to Summer Fattening on Pasture. 3. Fattening Cattle on Pasture. (Bureau of Animal Industry Bulletin 131.) Price, 10 cents.

Nutritive Value of Non-protein of Feeding Stuffs. (Bureau of Animal Industry Bulletin 139.) Price 10 cents.

Maintenance Reations of Farm Animals. (Bureau of Animal Industry Bulletin 143. Price, 15 cents.

Meat Situation in the United States. Part IV. Utilization and Efficiency of Available American Feed Stuffs. (Report 112.) Price, 5 cents.